IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) A method for decoding a message transmitted in a wireless communication system supporting packet data transmission, wherein a packet is divided into a number of subpackets, the method comprising:

determining a set of hypotheses for decoding the message, wherein the set of hypotheses includes a plurality of hypotheses that is determined from all combinations of available data rate and the number of subpackets;

using historical transmission information to reduce the number of hypotheses comprising the plurality of hypotheses within the set of hypotheses, wherein the number of hypotheses is reduced by limiting the combinations of available data rates and the number of subpackets based on the historical transmission information; and

decoding the message using each of the hypotheses of the reduced number of hypotheses comprising the plurality of hypotheses within the set of hypotheses.

2. (Previously Presented) The method as in claim 1, wherein the message is a reverse rate indicator (RRI).

3. (Previously Presented) The method as in claim 2, wherein each RRI codeword carries N_{Info} information bits, satisfying:

$$2^{N_{Info}} \geq N_{rate} \times N_{group}, \qquad (1)$$

wherein N_{rate} is the total number of available data rates, and N_{group} is the maximum number of subgroups for a transmission packet.

4. (Previously Presented) The method as in claim 2, further comprising:

determining metrics for each possible state for a received reverse rate indicator;

updating the metrics;

determining a sequence detection window length;

evaluating metrics for each state over the detection window length; and

selecting a reverse rate indicator symbol based on a maximum metric.

5. (Previously Presented) The method as in claim 4, wherein determining the set of hypotheses comprises correlating the received reverse rate indicator with possible reverse rate indicator codewords.

6. (Previously Presented) The method as in claim 4, further comprising:

comparing energy of the reverse rate indicator symbol to a threshold value; and

rejecting the reverse rate indicator symbol if the energy is below the threshold value.

7. (Previously Presented) The method as in claim 4, wherein each reverse rate indicator has a payload identifier x, and a subpacket identifier y, and corresponding state (x, y).

8. (Previously Presented) The method as in claim 7, wherein the determining metrics, further comprises:

determining a metric for each reverse rate indicator state based on when a most recent acknowledge message was sent.

9. (Previously Presented) An apparatus for decoding a message transmitted in a wireless communication system supporting packet data transmission, wherein a packet is divided into a number of subpackets, the apparatus comprising:

means for determining a set of hypotheses for decoding the message, wherein the set of hypotheses includes a plurality of hypotheses that is determined from all combinations of available data rate and the number of subpackets;

means for using historical transmission information to reduce the number of hypotheses comprising the plurality of hypotheses within the set of hypotheses, wherein the number of hypotheses is reduced by limiting the combinations of available data

rates and the number of subpackets based on the historical transmission information; and

means for decoding the message using each of the hypotheses of the reduced number of hypotheses comprising the plurality of hypotheses within the set of hypotheses.

10. (Previously Presented) The apparatus as in claim 9, wherein the message is a reverse rate indicator (RRI).

11. (Previously Presented) The apparatus as in claim 10, wherein each RRI codeword carries N_{Info} information bits, satisfying:

$$2^{N_{Info}} \geq N_{rate} \times N_{group},$$

wherein N_{rate} is the total number of available data rates, and N_{group} is the maximum number of subgroups for a transmission packet.

12. (Previously Presented) The apparatus as in claim 10, further comprising:

means for determining metrics for each possible state for a received reverse rate indicator;

means for updating the metrics;

means for determining a sequence detection window length;

means for evaluating metrics for each state over the detection window length; and

means for selecting a reverse rate indicator symbol based on a maximum metric.

13. (Previously Presented) The apparatus as in claim 12, wherein the means for determining the set of hypotheses comprises means for correlating the received reverse rate indicator with possible reverse rate indicator codewords.

14. (Previously Presented) The apparatus as in claim 12, further comprising:

means for comparing energy of the reverse rate indicator symbol to a threshold value; and

means for rejecting the reverse rate indicator symbol if the energy is below the threshold value.

15. (Previously Presented) The apparatus as in claim 12, wherein each reverse rate indicator has a payload identifier x, and a subpacket identifier y, and corresponding state (x, y).

16. (Previously Presented) The apparatus as in claim 15, wherein means for determining metrics, further comprises:

means for determining a metric for each reverse rate indicator state based on when a most recent acknowledge message was sent.

17. (Previously Presented) A computer-program product for transmission from a mobile station in a wireless communication system, the computer-program product comprising a computer-readable medium embodying executable instructions thereon, the instructions comprising:

code for determining a set of hypotheses for decoding the message, wherein the set of hypotheses includes a plurality of hypotheses that is determined from all combinations of available data rate and the number of subpackets;

code for using historical transmission information to reduce the number of hypotheses comprising the plurality of hypotheses within the set of hypotheses, wherein the number of hypotheses is reduced by limiting the combinations of available data rates and the number of subpackets based on the historical transmission information; and

code for decoding the message using each of the hypotheses of the reduced number of hypotheses comprising the plurality of hypotheses within the set of hypotheses.

18. (New) An apparatus for decoding a message transmitted in a wireless communication system supporting packet data transmission, wherein a packet is divided into a number of subpackets, the apparatus comprising:

a receiver, wherein the receiver comprises a decoder, the decoder configured to:

determine a set of hypotheses for decoding the message, wherein the set of hypotheses includes a plurality of hypotheses that is determined from all combinations of available data rate and the number of subpackets;

use historical transmission information to reduce the number of hypotheses comprising the plurality of hypotheses within the set of hypotheses, wherein the number of hypotheses is reduced by limiting the combinations of available data rates and the number of subpackets based on the historical transmission information; and

decode the message using each of the hypotheses of the reduced number of hypotheses comprising the plurality of hypotheses within the set of hypotheses.

19. (New) The apparatus as in claim 9, wherein the message is a reverse rate indicator (RRI).

20. (New) The apparatus as in claim 10, wherein each RRI codeword carries N_{Info} information bits, satisfying:

$$2^{N_{Info}} \geq N_{rate} \times N_{group},$$

wherein N_{rate} is the total number of available data rates, and N_{group} is the maximum number of subgroups for a transmission packet.